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Sources of Income Inequality: Empirical Evidence from Bulgaria

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Sources of Income Inequality: Empirical Evidence from Bulgaria

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Abstract

The paper contributes to the empirical research on the micro-determinants of income inequality in Southeast European transition countries. The analysis utilizes data from a representative survey of 3,300 Bulgarian households conducted in 2007 and quantifies income differentiation effects related to certain socio-demographic characteristics. Quantile regression analysis reveals positive net effects of the degree of urbanization and the number of employed in the household as well as negative effects of the number of unemployed, children, and pensioners on the per-capita income level at all parts of the income distribution. Inequality indices decomposition by subgroups identifies the type of settlement, ethnical group, the number of children and unemployed as substantial sources of income inequality in Bulgaria.

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1. Introduction

In the face of the global recession and related local economic impediments the inequality analyses appear to be of substantial public interest. The attention of research literature on the inequality concept raises various questions whether we are interested in equality of opportunities, welfare, resources, or capabilities (Nolan, 2009). The focus on income or consumption, as overall indicators for the economic position of the individual, leads to a particular concern about the interrelation between the inequality, poverty, and public policy.

The literature on inequality and poverty in emerging market economies has almost 20 years of tradition trying to explain the factors of living standards decline (see for instance Ahmad, 1992; Milanovic, 1998; Simai, 2006; Tridico, 2010). A common understanding is that country-specific political contexts are exceptionally diverse in respect of scale, historical background, and socio-economic structures (Simai, 2006). In transition countries inequality expansion is related to the ownership restructuring and to the transfer of the labor force from the public sector ("egalitarian" in essence) to the private one (Milanovic, 1999). It is also argued that liberalization-oriented government policies reducing the social spending have led to substantial limitation of social assistance, which in turn adversely affected social inequality in transition countries (Ivanova, 2007).

Using household survey data from 26 post-communist countries for the period 1990–2005, Milanovic & Ersado (2008) examine the exceptional increases in inequality in most of transition economies showing that economic reform level is positively related to the income shares of the top two deciles and negatively associated with the income share of the bottom decile. In the same time, their analysis finds no evidence for the assertion that increased government spending (as a share of GDP) reduces inequality. Using data from the Luxemburg Income Study for Poland, Hungary and Russia Giammatteo (2006) shows, on the contrary, that the redistribution policies in CEE countries restrain the raise of inequality inspired by the severe economic restructuring.

Since the start of pro-market reforms in 1989-1990 the socio-economic transformations in Bulgaria have passed through several stages accelerating the social

"polarization" in the country[1]. Various deficiencies in economic policy making, drastic industrial decline (after the collapse of the Council for Mutual Economic Assistance), collapsing infrastructures, and the loss of human capital due to the first-wave emigration have created hindrances to the economic modernization during the early transition (i.e. the first half of 1990s) (Bristow, 1996).

A commonly shared view characterizes Bulgarian early transition by minor progress in the social reforms – apart of the political system reform – when the living standards of a large share of the population have dropped substantially (Tsanov & Bogdanov, 2004). This was explained by a variety of obstructions in the transforming social mechanisms related to the complex of economic, social, and psychological barriers inherited from the past. Transition period governments were exposed to severe policy debate on the painful issues of increasing socio-economic inequality and poverty accompanied by intensive out-migration pressure. This invoked an increased public interest in anti-poverty policy measures which persists for almost 20 years now (Tsanov & Bogdanov, 2004; Shopov, 2006).

Since July 1997 Bulgaria has adopted a currency board arrangement (CBA) thus fixing the national currency to the euro (1 EUR = 1.95583 BGN). This facilitated the macroeconomic stabilization and steady economic growth in the years of EU pre-accession. Real GDP growth rates varied between 4.1% and 6.6% in the period 2001-2008 and in the same time the nominal GDP per capita have increased from 1919 EUR in 2001 to 4475 EUR in 2008. However, the official income level in Bulgaria is still the lowest among the new EU member states with GDP per capita in PPS about 35% of the 2006 EU25 average and 41% of the EU27 average for 2009[2].

The article aims to analyze the extent to which socio-demographic characteristics of the household as a whole or of the household head – such as ethnicity, type of settlement, household size, number of unemployed, number of children, number of pensioners, etc. – could be considered as sources of income inequality in Bulgaria. The article contains four main sections. The first section ("Inequality and poverty in Bulgaria – recent trends") comments on the dynamics of demographic indicators in the country as well as the poverty risks and respective anti-poverty policies. Special emphasis is put on the studies of poverty and the attitudes toward the so called "direct and indirect" measures for social assistance. The next two

[1] See for instance World Development Report 1996 - "From Plan to Market", pp.66-88.
[2] Source: NSI (www.nsi.bg) referring to Eurostat, New Cronos, Version 15.06.2010.

sections present the characteristics of the sample data obtained by a survey conducted in 2007 as well as the methodology applied for its analysis. Quantile regression is used for the assessment of the interrelation between household variables and income level for chosen ethnical communities (Roma, Turkish, and others) in reference to the Bulgarians. Decomposition of income inequality by subgroups is performed using the class of General Entropy indices that allow full breakdown to between and within group components. These empirical results are informative in respect of the main sources of income inequality in Bulgaria.

2. Inequality and poverty in Bulgaria – recent trends

2.1. General overview

During the last 20 years Bulgaria was affected by various adverse economic and demographic processes which were particularly severe during the first half of the 1990s. Bulgarian population decreased by about 13 per cent during the first 15 years of transition (1989-2004) – or 1.2 million in absolute figures – of which about 500,000 were due to natural decrease and 700,000 due to emigration. The negative demographic trends in Bulgaria were found to be more extreme and more influential to public assistance system compared to other European countries (Mansoor & Quillin, 2007).

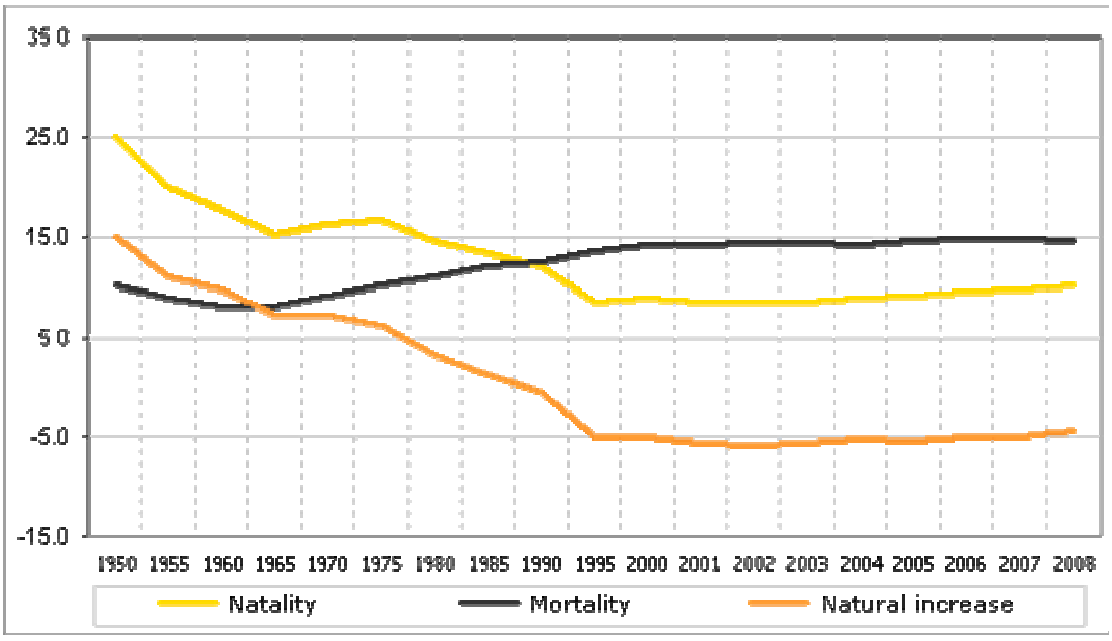

Figure 1.
Demographic indicators, Bulgaria (per 1,000 population; source: NSI /www.nsi.bg).

Along with this, the model of Bulgarian family has substantially and adversely altered, e.g. through a decrease in the intensity of marriages and shifts in the child bearing. For instance, the number of children born out of wedlock has drastically increased – from 12.4% in 1990 to 50.8% in 2006. Cohabitation has expanded since the start of the last decade and has doubled from 4.5% for 2001 to 10.4% of the families in 2007 (Mihailov & Nikolova, 2007). The persistent social inequalities burdened the social assistance system and hindered the inclusion of vulnerable social groups (Shopov, 2006). Additionally, increased migration from underdeveloped regions to more developed ones intensified the existing regional disparities.

The priorities of the governmental policy for income support and poverty alleviation can be generally outlined within the framework of European System of Integrated Social Protection Statistics (ESSPROS) reporting system introduced in Bulgaria since 2006. The data has been summarized by the standard ESSPROS schemes reflecting the social protection functions (table 1).

Table 1. Structure of monetary social benefit transfers, 2005-2007.

	2005		**2006**		**2007**	
	Mln. BGN	*%*	Mln. BGN	*%*	Mln. BGN	*%*
TOTAL	4674	***100.0***	5187	***100.0***	5756	***100.0***
Health care	187	***4.0***	206	***4.0***	194	***3.4***
Disability	507	***10.9***	578	***11.1***	595	***10.3***
Old age	3139	***67.2***	3393	***65.4***	3837	***66.7***
Survivors	237	***5.1***	345	***6.7***	382	***6.6***
Family/children	411	***8.8***	449	***8.7***	505	***8.8***
Unemployment	95	***2.0***	130	***2.5***	126	***2.2***
Housing / Social inclusion	95	***2.0***	84	***1.6***	114	***2.0***

Source: NSI, 2010 (www.nsi.bg).

In a situation with a large share of the aging population (with over 2.2 million pensioners) the main share of the monetary social benefits – about two thirds for 2007 – is observed for the old age pensions. The other funds – targeted to assist the socially vulnerable groups – however, have minor shares in spite of the fact that high necessity for public support was persistent not only during the early transition but also in the EU pre-accession years.

A commonly shared opinion states that Bulgarian social protection policy relates indirectly to the ethnicity of the population and particularly to the social

integration of Roma community. It accounts for about 5% of the population (according to 2001 Population Census) and its socio-demographic profile is frequently characterized by early marriages, relatively higher birth rates, more frequent school drop-outs, etc. The ethnic group of Bulgarian Turks (about 9% of population) still bears the drawbacks from the human capital loss of the exodus during the early transition period (Tomova, 1998; Noncheva & Satcheva, 2003).

According to data of Bulgarian National Statistical Institute /NSI/ the risk of poverty has stabilized at a level of about 14% in the years before and after EU membership of the country (January 1st, 2007). However, the poverty risk was estimated at higher rates for the children, pensioners, and especially for the unemployed where the coefficient reached 38% - 44% at the end of the decade (table 2). In the same time NSI estimates a quite high share of individuals exposed to the risk of poverty (about 40%) before the influx of social benefits endowments. However, the main role here is played by public pensions as one of the main sources of personal income – after transferring the pensions the risk is reduced at rates of about 17-18% per annum.

Table 2. Selected Laeken indicators for Bulgaria, 2004-2009.

Source: NSI	2004	2005	2006	2007	2008	2009
Average monthly wage (EUR)	150	166	184	220	279	300
Minimum monthly wage (EUR)	61	77	82	92	113	123
Median equivalent disposable income per month (EUR)	121.2	129.6	142.0	164.9	180.2	196.5
Mean equivalent DI per month (EUR)	133.6	141.1	152.6	178.4	200.3	214.1
Risk of poverty rate /RPR/, total (%)	15.2	14.2	13.9	14.1	14.4	14.7
RPR, age 0-15	21.5	17.8	15.1	18.8	17.1	21.4
RPR, age 65+	15.7	17.5	18.0	17.7	17.8	14.9
RPR, unemployed	33.8	34.2	35.8	37.9	43.3	44.0
RPR, pensioners	14.8	16.4	16.9	17.5	17.0	15.5
RPR, HHs with dependent children	17.8	15.1	14.4	15.4	14.9	16.9
RPR, before all transfers	40.1	39.1	40.5	40.5	43.5	46.9
RPR, including pensions, and before other social transfers	17.6	17.2	16.9	17.2	18.3	18.4
S80/S20 quintile share ratio	4.0	3.7	3.5	3.7	3.9	3.9
Gini coefficient*	26.4	24.9	24.1	25.3	26.3	26.2

* Estimated by data from the regular Household Budget Survey operated by NSI.

2.2. Short review of selected empirical studies of income inequality and public support policy

Regular estimates of the Gini index measuring the overall income inequality in Bulgaria are provided by NSI since the start of transition reforms when the Household Budget Survey has been reformed. The official Gini coefficient is measured for the net equivalent ***total*** household income, where "total" stands for the augmentation of the monetary components by the "consumption from own production" component. The Gini index is obtained as a sample estimate by the regular Household Budget Survey which operates a nationally representative sample of 3000 households. After estimated at an average level of 0.30 during the first ten years of transition, Gini values have dropped and stabilized at a level of 0.25 on average during the period of EU pre-accession. After the introduction of the EU Survey of Income and Living Conditions (EU-SILC) survey in Bulgaria, Eurostat publishes alternative estimates for Bulgarian Gini since year 2006 at an average level of 0.35[3].

A comprehensive empirical study of poverty in Bulgaria revealed various features of poverty level, income inequality, and their sources on the basis of Multipurpose Sample Survey of Households in 2003. The overall and regional estimates of poverty differentiation, polarization, their deepness and severity were obtained using a representative household sample (NSI, 2004). A range of determinants of the probability for falling into poverty have been identified using logistic regression models. The econometric analysis revealed that greater poverty risks are faced by: large households with more than two children, single parent households with children, households of elderly retired persons, households with unemployed or discouraged workers. The dummy variables for the rural areas as well as for the two main ethnical subgroups (Turkish and Roma) have shown statistically significant positive effects, and as a general conclusion, the Roma households are found to be most affected by poverty (NSI, 2004: 80-83).

For the same year and on the basis of an extract of the regular 2003 Household Budget Survey data Boshnakov (2005) obtained estimates for the main indices of household income redistribution through income tax and social transfers. Significant differentiation was estimated for the household monetary factor income (Gini=0.542) which is slightly reduced by personal income taxation (1.3 Gini points) and much

[3] http://epp.eurostat.ec.europa.eu/portal/page/portal/income_social_inclusion_living_conditions/data/database

stronger by the influx of monetary social transfers after which the coefficient is reduced to 0.27 for the disposable monetary income (Boshnakov, 2006).

Several aspects of household socio-economic status for 2005 have been studied in relation to the involvement of household members in migration processes. Almost 38% of remittances-receiving households used at least three quarters of the funds for consumption; also, evidence was found that seasonal Bulgarian migration in the period 2001-2005 not only augmented the current subsistence expenditures – about 26% of the households with short-term returnees have saved at least a quarter of the money as a protection from future income risks (Mintchev & Boshnakov, 2010).

The attitudes to family support policies in Bulgaria have been put in a special focus of a questionnaire survey conducted in 2007 (Mihailov & Nikolova, 2007). Its results are of particular interest here as far as they reveal various specific aspects of the family social support. The first group of measures – receiving the greatest approval by the respondents – concerns the 'raising children' services targeted in stimulating and motivating childbirths. The highest appreciation was observed for the measures "better access to consultations for pregnant women, breast-feeding mothers, newborns and children healthcare" and "imbursement of larger shares of kindergarten fees as well as of some services for families with children" (about 88%). These two measures, together with the expectations for "opening new kindergartens" (85%), receive higher valuation by the people living in rural areas and with primary education. The approval of these measures increases among the real consumers of such policies (e.g. mothers who actually receive monthly benefits for raising a child under 1 year of age).

The second group of measures – categorized as "indirect support for the services on raising a child" – received somewhat lower appreciation. These measures were perceived mostly as "stimulating the opportunities of the mothers to work with reduced work hours" (86%) and as "developing alternative services for raising children" (83%). The third group of measures – described as "differentiating the support" – contained instruments that are purposefully oriented to the state support towards specific active groups of the population (e.g. younger and more educated people). For different reasons these measures receive lower approval by both the groups with high and low social status. For example, stimulation of childbirths by mothers only to a certain age (for example, up to 30) is approved by the Roma (18%) but threatens the people with higher education, among whom the approval of these

measures drops to 13%. An important results was obtained for a group of people (40%) who wish *all direct benefits to be stopped* and the childbirths to be stimulated with lower taxes for the parents – this group increases to 47% among people with higher education and 44% among the higher age group (31–35).

Another main survey result shows that Romas are most active in the search of benefits (e.g. 33% of Romas receive monthly benefits for raising a child under 1 year of age, compared to 23% of the Bulgarians and only 9% of the Turks). Similarly, 14.7% of Romas receive targeted benefits for pupils compared to 1.3% of Turkish and 2% of Bulgarian respondents. Due to their low income level, Romas appear to be target group on most of the existing benefit instruments as far as the programs are developed by income criteria. This can explain for example the fact that individuals from this ethnic subgroup receive about three times more target benefits for pupils. On the contrary, Turkish respondents show much more rarely a receipt of income benefits even though their incomes are not much higher than those of the Roma.

As a whole, the strategy for improving the demographic environment through directly and indirectly supporting the conditions for raising children receives substantial societal approval. The appreciation of measures that would "differentiate" the support for young and more educated parents is considerably low. Firstly, respondents emphasize that the support should refocus from benefits for parents towards benefits for raising children, which in 2007 was done through one pilot program. Next, a specific need is declared for sharing the responsibilities for kindergarten childcare between the central and local budgets. Along with this, the legal regulations which can provoke preferences to marriage instead of cohabitation should be reconsidered (Mihailov & Nikolova, 2007).

3. Data sources and methodology

3.1 Data sources

Empirical micro data for the study is derived for secondary analysis from a database of a relatively large sample survey of Bulgarian households[4]. It was conducted in 2007 as a nationally representative questionnaire survey with a sample size of 3300 households. The survey questionnaire provides empirical data for a variety of variables allowing a comprehensive study of the interrelation between family patterns and migration attitudes against the range of social, economic, and demographic „attributes" according to its specific research goals. The survey was split in 2 Sections: (1) "Family Models and Attitudes", and (2) "Migration Experience and Attitudes". However, the Section 1 (i.e. the set of questions related to the family issues) covers only about half of the units (about 1800) due to restrictions on the age of respondent – namely, those with a main bread winner up to 35 years of age.

On the other hand, in order to obtain information about child bearing attitudes and respective social issues opinion, gender balance was targeted where over 50% female respondents were selected as households' representatives. For this reason, the sample does not represent the Bulgarian households' population by the variable "gender of the household head". The other 1,500 units were required to fill only Section 2 in order to obtain representative results about migration issues for the overall population.

[4] "Family Models and Migration Attitudes" Policy Research Project, Agency for Socio-economic Analyses & Centre for Comparative Studies, 2007-2008, commissioned by the Ministry of Labor and Social Policy (Project BUL1P201 "Support for Demographic Processes Policy Development") and supported by United Nations Population Fund /UNFPA/.

Table 3. Socio-demographic structure of the sample.

	Ethnical group				
	Bulgarian	Turkish	Roma	Other	Total
3.1. Type of settlement					
Capital city /Sofia/	18.5	0.3	4.6	8.3	15.8
City – district center	36.0	17.2	13.2	11.1	32.4
Other city/town	23.6	17.8	38.4	16.7	24.0
Rural village	21.9	64.6	43.8	63.9	27.9
Observations	2717	314	219	36	3286
%	***82.7***	***9.6***	***6.7***	***1.1***	***100.0***
3.2. Household size					
1	7.0	2.9	3.2	2.8	6.3
2	20.2	10.5	11.0	13.9	18.6
3	29.3	17.9	12.3	13.9	26.9
4	28.9	31.3	23.7	38.9	28.9
5	9.4	19.5	18.7	13.9	11.1
6	4.0	13.4	13.2	5.6	5.5
7	0.8	2.2	9.6	8.3	1.6
8	0.1	1.3	4.1	–	0.5
Over 8	0.4	1.0	4.1	2.8	0.7
3.3. Number of unemployed					
0	74.9	35.6	20.1	19.4	66.9
1	19.4	36.2	30.4	38.9	22.0
2	4.7	18.8	26.2	19.4	7.6
3	0.4	5.8	9.8	8.3	1.6
4	0.5	2.9	8.4	11.1	1.3
Over 4	0.1	0.6	5.1	2.8	0.5
3.4. Number of children					
0	47.3	37.2	25.7	36.1	44.7
1	30.1	25.9	20.6	25.0	29.0
2	20.7	32.4	31.3	33.3	22.6
3	1.4	3.9	14.0	2.8	2.5
Over 3	0.6	0.6	8.4	2.8	1.1
3.5. Number of pensioners					
0	71.1	65.6	73.2	80.6	70.8
1	19.3	22.1	16.4	11.1	19.3
2	8.9	12.0	8.9	8.3	9.2
Over 2	0.7	0.3	1.4	–	0.7

Source: Authors' calculations.

The cross-tabulations of the main household characteristics outline the sample structure obtained for each subpopulation according to the ethnic composition of the sample (table 3). Almost 83% of the units represent the so called "majority" group (Bulgarians) and about 10% and 7% are the shares of the Turkish and Roma households. Divergence is observed for these subgroups in respect of the distributions by household size and the number of unemployed and children. The main variables used hereafter in the analysis are those expected to have an adverse impact on the economic status of the household. These variables are: (1) type of the settlement of residence of the household /capital city, city - district center, other city/town, rural village/; (2) number of children; (3) number of unemployed; (4) the number of pensioners.

3.2. Methodology

3.2.1. Quantile regression for the main socio-economic determinants

Quantile regression proved to be a useful tool when we need to examine the partial effects of particular independent variables by observing how they differ *across the whole distribution* and not just at the mean. Introduced by Koenker and Bassett (1978), this method appears to be a natural extension to the classical regression analysis. The linear regression model provides estimates for the changes in the *conditional mean* of a dependent variable related to changes in the covariates. On the other side, the quantile regression model aims to capture the changes in the *conditional quantile* of the dependent variable associated to changes in the included predictors. It is argued that the conditional-mean model cannot be easily extended to non-central locations, however, notably here is a substantial interest from social science research point of view (e.g. the studies of economic inequality and mobility have particular interest in the poor – at the lower tail – and the rich – at the upper tail of the income distribution). Particularly, the results on a set of equally-spaced conditional quantiles can characterize the effects of the covariates on the conditional income distribution in addition to the effects on its mean (Hao & Naiman, 2007: 2-4).

As a special case of analysis, a quantile regression model is estimated in order to capture the income differentials in respect of the three ethnic subgroups (Azam, 2009). We use the method to evaluate how the relation between household log-income

per capita (log-PCI) and household covariates (X) for the target subgroups differs from that for the reference group at various quantiles of the income distribution. For this purpose, a quantile regression model was estimated in the following form:

$$Q_\theta\left[y / \mathbf{X}, D\right] = \alpha_0^{(\theta)} + \mathbf{X}\beta_0^{(\theta)} + \sum\nolimits_j \left(\alpha_j^{(\theta)} + \mathbf{X}\beta_j^{(\theta)}\right)D_j + u_{(\theta)}$$

where $Q_\theta[\bullet]$ is the conditional θ-th quantile of log-PCI and D_j are dummy variables for the target subgroups. The quantile intercepts and slopes $\alpha_j^{(\theta)}$ and $\beta_j^{(\theta)}$ should capture the differentials between the j-th (j=1,2,3 for "Turkish", "Roma", "Other") and the reference subpopulation (Bulgarian).

3.2.2. Income inequality decomposition by population subgroups

The extent, to which the overall level of inequality can be attributed to inequality between subpopulations, or to inequality within them, could be analyzed by making use of appropriate decomposition methods (e.g. Jenkins & Van Kerm, 2009; Lambert, 2003). Various measures of economic inequality are suggested in the welfare economics literature. However, they differ in many aspects, e.g. in their sensitiveness to income variation in different parts of income distribution. As P.Lambert (2003: 116) notes, *"... each family of indices has its particular recommendations and uses…. How should we choose in any particular context between the indices which present themselves? We have to balance statistical attractiveness against ease of interpretation and normative content"*. Here we use the Generalized Entropy class of indices with the sensitivity parameter "a" (Jenkins & Van Kerm, 2009):

$$GE(a) = \frac{1}{a^2 - a}\int\left(\left(\frac{y}{\mu_y}\right)^a - 1\right)f(y)dy \qquad \text{(for a} \neq 0, 1).$$

When "a" takes lower values the index is more sensitive to variation at the lower tail of income distribution, and *vise versa* – the larger positive "a", the more sensitive is GE(a) to income differences at the top of the distribution. In other words, enlarging the value of "a" leads to increasing the sensitivity of the index to income variation at the upper tail. The usual "a"-values utilized in empirical studies are 0, 1 and 2 where specific formulas are suggested for the cases a=0 and a=1. When a=1 equal importance is put on incomes across the entire distribution.

The empirical results in the following study are obtained for the GE measures presented in table 4. For comparison reasons we also present the values of the overall and subgroup Gini coefficients.

Table 4. Generalized entropy indices adopted in the study.

GE(0) Mean logarithmic deviation	$GE(0) = \frac{1}{n}\sum_{i=1}^{n} log\frac{\bar{y}}{y_i}$
GE(1) Theil entropy index	$GE(1) = \frac{1}{n}\sum_{i=1}^{n}\left(\frac{y_i}{\bar{y}} log\frac{y_i}{\bar{y}}\right)$
GE(2) Half the square of the coefficient of variation	$GE(2) = \frac{1}{2n\bar{y}^2}\sum_{i=1}^{n}(y_i - \bar{y})^2$

These measures are chosen since it is well known from the inequality theory literature that they are fully decomposable into between-group (Ib) and within-group (Iw) components (see Shorrocks, 1984; Cowell & Jenkins, 1995). So the GE(a) index of total inequality can be decomposed using a simple additive relation:

$$I = Ib + Iw$$

The between-group component (Ib) is designed to capture the contribution to the overall inequality of the chosen categorization (or partitioning) characteristic – if just one – or any combination of categorization variables dividing the population in separate target subgroups. In other words, Ib should measure that part of the inequality which can be contributed to the differences between the subpopulation constituted by the chosen partitioning characteristic. The decomposition for a cross-section of a population at a particular point in time is known as "static" decomposition.

The within-group component of the general entropy index can be expressed as:

$$Iw = \sum v_g GE_g(a) = \sum p_g^{1-a} x_g^a GE_g(a)$$

where p_g is the population share, x_g is the income share of subgroup "g", and $GE_g(a)$ is the inequality index calculated for the units belonging to "g". On the other hand, the between-group component of GE(a) is a 'simulated' inequality index obtained by imputing to each unit *the mean income of the subgroup* to which this individual belongs.

4. Empirical results

4.1. Quantile regression results

A basic quantile regression function is estimated in order to reveal the marginal effects of selected socio-economic characteristics on the income level at each income decile. The descriptive statistics of the independent variables used in the analysis are presented in table 5. This initial specification of the model was estimated using the natural logarithm of the equalized *per capita* income (log-EIPC) as a dependent variable. The equalization assumes standard economies of scale (with parameter 0.5) and is obtained by the formula:

$$EIPC = HHinc / \sqrt{HHsize}$$

Table 5. Variables description

Variable	Mean	Std. Dev.
Natural log from equalized income per capita*	5.053	0.725
Number of employed	1.695	1.009
Number of unemployed	0.499	0.897
Number of children	0.858	0.981
Number of pensionners	0.405	0.685
Type of settlement - Sofia**	0.134	0.341
Type of settlement - District center city	0.328	0.470
Type of settlement - Other city/town	0.259	0.438
Type of settlement - Rural	0.278	0.448
Ethnicity - Bulgarian**	0.817	0.386
Ethnicity - Turkish	0.076	0.265
Ethnicity - Roma	0.095	0.294
Ethnicity - Other	0.011	0.105
Ownership of: Dwelling	0.594	0.491
Ownership of: Vehicle	0.403	0.491
Ownership of: Regulated land spot	0.147	0.354
Number of current migrants (abroad)	0.088	0.374
Number of return migrants (from abroad)	0.129	0.452

Notes: * Dependent variable; ** Reference dummy variable. The shares of some subpopulations differ from those in table 3 mainly due to: weighting of observations by household size; missing values on one or more variables included in the model.

Table A1 (Appendix) contains the main results from the estimation of OLS regression and 9 conditional quantile regression models of the initial specification.

Most of the variables show statistically significant net effects along the whole income distribution. These are:

a) with the expected positive effects: the number of employed and the dummy for vehicle ownership;

b) with the expected negative effects:

- the number of unemployed, the number of children, the number of pensioners – in all these cases, increasing the number of individuals in the respective categories leads to a reduction (*ceteris paribus*) in the log-EIPC at all parts of the income distribution.
- the dummy variables for: (i) settlement types /as compared to the capital city/ and (ii) ethnical groups /as compared to the reference group/.

Other two household characteristics also show significant positive effects in the OLS estimation – namely (i) the dummy for land spot ownership and (ii) the number of international return migrants (i.e. former migrants who are currently residing in the home country). Considering the location at the income distribution, net effects of these two variables are generally not observed at the lower tail of the income distribution; on the contrary, significant net effects are observed:

- for the ownership of a land spot – from the median to the top decile;
- for the number of return migrants – from the 3rd to the 8th decile.

The ownership of a dwelling and the number of current migrants (member of the household that are currently residing abroad) do not show any significant net correlation with log-EIPC. Particularly, the result for 'current migrants' variable is plausibly indicating that, other things equal, effect of remittances as income-supporting factor cannot be anticipated in 2007.

The results from the estimated quantile regression model capturing the income differentials in respect of the three ethnic subgroups are presented in table A2 (Appendix).

1) The number of children, number of unemployed, and the number of pensioners appear as statistically significant predictors with the expected negative effect, i.e. increasing the number of household members from these categories has an adverse impact on the income per capita level. The 'number of unemployed' variable has somewhat decreasing (in absolute terms) coefficients indicating the "weakening" of its effect with the movement up the income levels. On the contrary, the effect of the

'number of pensioners' is increasing with the shift of the location up the income distribution.

2) Similarly, residing in settlements other than the capital city leads to a decrease, on average, of the income per capita which slightly tends to decrease at the higher income distribution locations.

3) Significant differentials of the net effects of the variables for the Turkish group are observed only for some variables and in some parts of the distribution. The 'type-of-settlement' differentials dummies are found negative and significant mainly at the lower-income deciles. Also, higher income Turkish households living in the rural areas do not differ significantly from the reference group in this respect.

After accounting for the mean income differential (where lower level of log-IPC is estimated on average for the Turkish households with an elasticity of –0.364), this group diverges significantly from the reference group in respect of the effects of the number of employed, unemployed, children, and pensioners – however, these effects almost disappear when estimated at the upper tail of the income distribution. A systematic positive differential for the 'number of employed' is observed in favor of Turkish households, where the marginal contribution of each working household member is positive as compared to the Bulgarian reference group.

4) Similar results for the number of household members in different categories are found also for the Roma group. A possible explanation for this is the operation of specific social assistance schemes that provide larger families with additional financial support, other things equal. The differential effects of the number of children and the unemployed for the Roma households are also positive and strongly significant (i.e. compensating the large negative effects as measured for the reference group) – a result that could be considered as informative regarding the in-depth analysis of the social assistance targeting. The positive differential for the 'number of employed' is even higher than that of the Turkish households which reveals the substantive importance of employment within the Roma subgroup.

Interesting result requiring further clarification is the strongly significant positive effect of the dummy-variable interactions for Roma households living in the countryside (semi-urban and rural areas). As compared to those living in the capital city, the large negative overall differential for the Roma observations is partially reduced. A plausible explanation for this result could be provided by the fact that –

unlike the Romas living in the countryside – those living in the capital city have worse labor market positions and reside predominantly in suburban "ghetto" - areas.

4.2. Empirical results from the inequality decomposition by subgroups

This section presents the main results of the analysis performed in order to quantify the magnitude of the inequality that can be attributed to selected socio-demographic characteristics of the households. These results are obtained after weighting of the observations by household size.

1) We first decompose the inequality separately by the selected household attributes. The main results of the inequality decompositions are presented in Table 6.

(a) The Theil index in respect of the four types of settlements shows almost twice higher inequality in the rural areas than in the capital city (Sofia). Having in mind that the Gini coefficient is more sensitive to differences around the mean, it shows somewhat lower disparity ranging from 0.25 in the capital city to 0.36 in the rural areas. In relative terms, the share of the between-group component of the overall inequality due to habitation of settlements with different degree of urbanization (related to their economic scale, functions, development prospects, living standards, opportunities for employment, etc.) is estimated between 12 and 15%.

(b) Higher disparities are found in respect of the ethnical structure, mainly when comparing the Roma ($G_{[r]}$=0.419) with the Bulgarian and Turkish groups (0.297 and 0.326). Very high inequality is observed for the category "Other", which is due to the substantial group-specific heterogeneity regarding the socio-economic status and characteristics of these households. Overall, the between-group component originating from the partitioning only by ethnicity is estimated between 11 and 16%. It is interesting here to note that the highest value is obtained for GE(0) index which puts a higher importance on the differences in the lower tail of the distribution, i.e. focusing more on the inequality among the poorer individuals.

(c) The highest share of the between-group component is estimated for the 'number of unemployed' variable (19%–25%). Substantial discrepancy is observed when accentuating on the upper tail of income distribution – the GE(2) index increases from 0.16 for households without unemployed to 0.30 for those with 2 unemployed and to 0.40 for units with 3 or more unemployed. The effect is not so strong when the emphasis is put on the lower tail or the mean income level.

Table 6. Decomposition of income inequality by selected household attributes.

	GE(0)	GE(1)	GE(2)	Gini
6a. Type of settlement				
Capital city /Sofia/	0.125	0.104	0.119	0.248
Other city /d.c./	0.158	0.155	0.202	0.292
Town	0.185	0.164	0.178	0.315
Village /rural/	0.244	0.217	0.246	0.361
Total sample	**0.217**	**0.193**	**0.226**	**0.337**
Within (Iw)	0.190	0.164	0.194	–
Between (Ib)	0.027	0.029	0.032	–
%of Ib	***12.4%***	***15.0%***	***14.2%***	–
6b. Ethnic group				
Bulgarian	0.164	0.152	0.180	0.297
Turkish	0.185	0.193	0.255	0.326
Roma	0.304	0.302	0.397	0.419
Other	0.404	0.439	0.698	0.479
Total sample	**0.216**	**0.193**	**0.226**	**0.337**
Within (Iw)	0.183	0.165	0.201	–
Between (Ib)	0.033	0.028	0.025	–
%of Ib	***15.3%***	***14.5%***	***11.1%***	–
6c. Number of unemployed				
0	0.134	0.131	0.160	0.275
1	0.176	0.166	0.192	0.317
2	0.259	0.237	0.302	0.367
3+	0.224	0.250	0.395	0.361
Total sample	**0.217**	**0.194**	**0.228**	**0.337**
Within (Iw)	0.162	0.147	0.185	–
Between (Ib)	0.055	0.047	0.043	–
%of Ib	***25.3%***	***24.2%***	***18.9%***	–
6d. Number of children				
0	0.200	0.180	0.207	0.327
1	0.169	0.156	0.181	0.300
2	0.194	0.179	0.221	0.319
3+	0.308	0.343	0.558	0.422
Total sample	**0.218**	**0.194**	**0.228**	**0.337**
Within (Iw)	0.198	0.177	0.213	–
Between (Ib)	0.020	0.017	0.015	–
%of Ib	***9.2%***	***8.8%***	***6.6%***	–
6e. Number of pensioners				
0	0.220	0.191	0.219	0.336
1	0.220	0.205	0.257	0.343
2+	0.166	0.155	0.178	0.302
Total sample	**0.218**	**0.194**	**0.228**	**0.337**
Within (Iw)	0.214	0.190	0.224	–
Between (Ib)	0.004	0.004	0.004	–
%of Ib	***1.8%***	***2.1%***	***1.8%***	–

Source: Authors' calculations.

(d) Decompositions by the last two variables – the number of children and the number of pensioners in the household – show quite lower contributions of these characteristics to income inequality level. Although inequality within the subgroup of households with 3 or more children is quite higher than within the other groups (e.g. GE(2) raising from 0.21 for households without children to 0.56 for those with 3 or more children), the overall contribution of between-group component for this variable is less than 10% (between 7% and 9%). This could be explained by the lowest weight of this subgroup (about 4%) in the sample. The between-group component has much lower share (about 2%) for the "number of pensioners" variable which does not seem to be a noteworthy source of inequality. Even more – the subgroup of households with 2 or more pensioners has the lowest indices of inequality (GE indices between 0.16-0.18). This fact provides evidence for a particular equalization effect of state pensions which are the main source of income for the pensioners in Bulgaria – and especially for the households constituted by pensioners only.

2) In order to derive some more informative inequality decompositions two bivariate configurations of subgroups have been formed:

(i) "Type of settlement" by "Ethnical group";

(ii) "Number of children" by "Number of unemployed".

Because the category "Others" has a very small share in the sample, for the purposes of partitioning [i] it was merged with the main ethnic group, i.e. Bulgarian (table 7.). When both attributes considered in [i] are accounted for, the decomposition of indices provides more in-depth insights on the income divergence between the obtained 12 groups. Substantial disparities between intra-class inequalities are observed in all ethnic subgroups when the location of their residence shifts to small-scale settlements. For example, the Gini coefficient takes values in quite a wide range – from 0.17 for 'Romas living in the capital city' to 0.47 for "Romas living in rural areas". Similar effects but with lower quantitative gaps are observed also for the other two subgroups. Thus, when considering the two household variables (i.e. settlement type and ethnicity) in combination *a substantial increase of the between-group inequality share* to levels of 20-23% is observed.

When other two – important from the policy perspective – household characteristics are cross-tabulated, namely the number of children and the number of unemployed individuals in the household, the resulting partitioning [ii] provides even higher shares of the between-group inequality component. Particularly, when the low-

income part of the distribution is more emphasized (as by GE(0)) the between-group component *reaches a level of 29% of the total inequality*. Considerable gaps are found also between particular subpopulations – for example, GE(2) index increases from 0.16 for "No-children / No-unemployed" households to 0.45 for "2 or more children / 2 or more unemployed" households (table 7.b). These results clearly identify the combination of these two variables – having substantial social and economic importance – as other intensive sources of inequalities.

Table 7. Decomposition of inequality by bi-dimensional partitioning

	GE(0)	GE(1)	GE(2)	Gini
7.a. "Ethnical group" by "Type of settlement"				
Bulg.+Other / Sofia	0.116	0.101	0.113	0.240
Turkish / Sofia	–	–	–	–
Roma / Sofia	0.052	0.057	0.065	0.167
Bulg.+Other / City	0.143	0.143	0.190	0.278
Turkish / City	0.181	0.189	0.230	0.331
Roma / City	0.145	0.131	0.130	0.284
Bulg.+Other / Town	0.130	0.120	0.129	0.269
Turkish / Town	0.266	0.305	0.452	0.399
Roma / Town	0.231	0.227	0.280	0.364
Bulg.+Other / Rural	0.208	0.184	0.201	0.333
Turkish/ Rural	0.158	0.155	0.192	0.296
Roma / Rural	0.388	0.379	0.499	0.470
Total sample	**0.216**	**0.193**	**0.225**	**0.337**
Within (Iw)	0.169	0.149	0.181	–
Between (Ib)	0.047	0.044	0.044	–
%of Ib	***21.8%***	***22.8%***	***19.6%***	–
7.b. "N. of children" by "N. of unemployed"				
0 / 0	0.144	0.135	0.158	0.281
0 / 1	0.141	0.128	0.136	0.280
0 / 2+	0.245	0.239	0.304	0.372
1 / 0	0.111	0.115	0.139	0.257
1 / 1	0.162	0.158	0.198	0.300
1 / 2+	0.246	0.199	0.201	0.348
2+ / 0	0.133	0.131	0.170	0.267
2+ / 1	0.176	0.176	0.206	0.326
2+ / 2+	0.240	0.263	0.452	0.363
Total sample	**0.217**	**0.194**	**0.227**	**0.337**
Within (Iw)	0.155	0.141	0.179	–
Between (Ib)	0.062	0.053	0.048	–
%of Ib	***28.6%***	***27.3%***	***21.1%***	–

If proceeding this way, any further 2 or higher dimensional partitioning could increase the share of inequality that is due to the divergence between the households nested in the respective subgroups. However, this approach could lead to an increase in between-group component only as a result of the increase of the number of subgroups (i.e. the "finer partition characterization" argument, see e.g. Shorrocks & Wan, 2004). Still, other factors could influence this effect and – up to our knowledge – there are no strict proofs that identify the "finer partitioning" as invalid for inequality decomposition analysis. In any case, the partitioning combinations could be numerous under some arbitrary choice which calls for an application of a more refined methodology.

5. Conclusions

There are still opinions that Bulgarian civil society does not compel enough pressure regarding the issues of economic inequality. In the same time, there are persistent voices for the improvement of the social safety net in respect of its effectiveness and better social targeting. M.Ivanova (2007: 20) accurately summarizes the unfavorable situation in Bulgaria stating that *"... in reality, the "results" of social protection designed to follow the minimalist cost-containment strategies are only "positive" for the state budget and the international creditors. Such policies not only contribute to the persistence of poverty and inequality, but also perpetuate a socio-economic model that effectively reproduces generalized structures of inequality"*.

In this context, the application of quantile regression analysis identified several household variables as significant sources of income variation. The number of children, number of unemployed, or the number of pensioners has an adverse effect on the income per capita level. Similarly, households that inhabit settlements other than the capital city have (on average) lower income – this effect however tends to decrease when moving up the income distribution. Moreover, the results show that the Turkish community diverges significantly from the reference group (Bulgarians) at the lower part of the income distribution – such effects however disappear when considering the upper tail.

Positive differential for the variable "number of employed" is estimated for the Turkish households. This effect is even higher for the Romas which reveals the importance of employment within these communities. Positive differential effects for

the Roma households regarding the number of children and the unemployed compensate the large negative effects estimated for the Bulgarians. This provides a possible explanation for the divergence of the attitude towards the direct and indirect social assistance measures discussed above (section 2.2).

The income inequality decomposition results reported in this paper identify several socio-demographic household variables that contribute to the variation of per-capita income. The largest share of the between group component is estimated for the number of unemployed in the households (24%) followed by the type of settlement and the ethnicity (about 15%). On the contrary, the number of pensioners does not show substantial contribution to the inequality level (about 2%) and the effect of the number of children is just moderate (9%). From the policy perspective these results demonstrate the necessity of additional efforts concerning the labor market policy as well as the decentralization and local development approaches.

In general, the main results provide orientation regarding those Bulgarian households' characteristics that could be targeted by the public policy instruments for poverty alleviation. However, such a decomposition analysis should be considered with caution. For example, the conclusion regarding the spatial location as a determinant of inequality should account for the fact that it encompasses the effects of a range of other factors (e.g. natural resources availability, weather conditions, cultural traditions, etc.). In this respect, Shorrocks and Wan (2004: 13) make an important notion that *"... current procedures assign all of these factors to location without trying to disentangle the associated influences. The estimated between-group component cannot therefore be taken as a measure of the spatial contribution unless and until the definition of space is clarified. Furthermore, caution needs to be exercised when drawing policy implications from the empirical evidence."*

In light of these arguments, a more detailed further analysis can reveal any effects of additional social and household characteristics that could potentially provide useful insights on the main sources of economic inequality in the country. The prospects of this analysis are promising in respect of the understanding and quantification of income differentiation among population subgroups identified as special targets of welfare support policies. Such an approach could be beneficial from a policy perspective if particular goals are set regarding the inequality dimension of the income policies – a policy setting that is not yet clearly revealed in Bulgarian public policy domain.

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APPENDIX

Table A1. OLS and Quantile Regression analysis results, initial specification

Variable	OLS		10th		20th		30th		40th		50th		60th		70th		80th		90th	
	Coef.	p-value	Coef.	p-value	Coef.	p-value	Coef.	p-value	Coef.	p-value	Coef.	p-value	Coef.	p-value	Coef.	p-value	Coef.	p-value	Coef.	p-value
Constant	5.476	0.000	5.027	0.000	5.137	0.000	5.285	0.000	5.391	0.000	5.515	0.000	5.630	0.000	5.741	0.000	5.944	0.000	6.154	0.000
N.of employed	0.101	0.000	0.115	0.000	0.110	0.000	0.104	0.000	0.101	0.000	0.089	0.000	0.072	0.000	0.065	0.000	0.043	0.001	0.023	0.413
N.of unemployed	-0.208	0.000	-0.278	0.000	-0.263	0.000	-0.257	0.000	-0.247	0.000	-0.234	0.000	-0.226	0.000	-0.220	0.000	-0.228	0.000	-0.190	0.002
N.of children	-0.169	0.000	-0.205	0.000	-0.176	0.000	-0.188	0.000	-0.187	0.000	-0.194	0.000	-0.196	0.000	-0.199	0.000	-0.198	0.000	-0.159	0.000
N.of pensionners	-0.135	0.000	-0.136	0.000	-0.104	0.000	-0.111	0.000	-0.126	0.000	-0.128	0.000	-0.140	0.000	-0.147	0.000	-0.188	0.000	-0.211	0.000
District center city	-0.336	0.000	-0.375	0.000	-0.325	0.000	-0.317	0.000	-0.314	0.000	-0.315	0.000	-0.284	0.000	-0.278	0.000	-0.279	0.000	-0.322	0.000
Other city/town	-0.473	0.000	-0.541	0.000	-0.465	0.000	-0.445	0.000	-0.430	0.000	-0.438	0.000	-0.409	0.000	-0.375	0.000	-0.381	0.000	-0.440	0.000
Rural	-0.501	0.000	-0.592	0.000	-0.531	0.000	-0.491	0.000	-0.468	0.000	-0.445	0.000	-0.424	0.000	-0.404	0.000	-0.353	0.000	-0.394	0.000
Turkish	-0.221	0.000	-0.147	0.012	-0.127	0.015	-0.124	0.000	-0.143	0.000	-0.182	0.000	-0.227	0.000	-0.288	0.000	-0.300	0.000	-0.278	0.004
Roma	-0.333	0.000	-0.399	0.000	-0.381	0.000	-0.386	0.000	-0.246	0.000	-0.227	0.000	-0.261	0.000	-0.258	0.000	-0.280	0.000	-0.270	0.005
Other	-0.351	0.000	-0.082	0.554	-0.241	0.050	-0.309	0.000	-0.431	0.000	-0.339	0.000	-0.335	0.000	-0.289	0.016	-0.408	0.000	-0.315	0.150
Own.of: Vehicle	0.195	0.000	0.219	0.000	0.192	0.000	0.178	0.000	0.170	0.000	0.151	0.000	0.163	0.000	0.152	0.000	0.151	0.000	0.211	0.000
Own.of: Land spot	0.081	0.006	0.107	0.036	0.034	0.453	0.010	0.733	0.042	0.190	0.059	0.007	0.054	0.024	0.100	0.008	0.099	0.003	0.173	0.009
Own.of: Dwelling	-0.007	0.735	0.026	0.500	0.042	0.218	0.033	0.131	0.009	0.707	-0.003	0.832	-0.024	0.175	-0.032	0.237	-0.033	0.166	-0.036	0.457
N.current migrants	-0.015	0.626	-0.048	0.250	-0.047	0.300	-0.044	0.128	-0.015	0.644	-0.039	0.079	-0.014	0.582	-0.004	0.919	0.011	0.746	0.014	0.839
N.return migrants	0.070	0.001	0.060	0.105	0.039	0.250	0.042	0.066	0.047	0.077	0.052	0.008	0.068	0.006	0.076	0.001	0.059	0.007	0.029	0.562
*R-square**	*0.598*		*0.453*		*0.452*		*0.435*		*0.416*		*0.394*		*0.373*		*0.343*		*0.310*		*0.263*	

* Pseudo R2 for Quantile Regressions; ** Dummy variables; Number of observations: 2705.

Table A2. OLS and Quantile Regression analysis results (with interaction)

Characteristic	OLS		10th		20th	
	Coef	P-value	Coef	P-value	Coef	P-value
Constant	5.686	0.000	5.246	0.000	5.354	0.000
Number of employed	0.050	0.000	0.063	0.001	0.063	0.000
Number of unemployed	-0.281	0.000	-0.370	0.000	-0.357	0.000
Number of children	-0.223	0.000	-0.240	0.000	-0.217	0.000
Number of pensionners	-0.200	0.000	-0.205	0.000	-0.154	0.000
Type of settlement - District center city**	-0.337	0.000	-0.366	0.000	-0.336	0.000
Type of settlement - Other city/town**	-0.456	0.000	-0.541	0.000	-0.441	0.000
Type of settlement - Rural**	-0.484	0.000	-0.527	0.000	-0.504	0.000
Ownership of: Dwelling**	-0.008	0.751	-0.007	0.799	0.035	0.003
Ownership of: Vehicle**	0.172	0.000	0.206	0.000	0.154	0.000
Ownership of: Regulated land spot**	0.127	0.000	0.103	0.007	0.063	0.000
Number of current migrants (abroad)	-0.047	0.198	-0.078	0.064	-0.077	0.000
Number of return migrants (from abroad)	0.064	0.033	0.005	0.899	0.011	0.514
Ethic - Turkish**	-0.364	0.567	-0.057	0.703	-0.190	0.001
T * Number of employed	0.065	0.044	0.073	0.091	0.099	0.000
T * Number of unemployed	0.059	0.051	0.139	0.000	0.145	0.000
T * Number of children	0.080	0.008	0.109	0.004	0.073	0.000
T * Number of pensionners	0.158	0.000	0.285	0.000	0.218	0.000
T * Type of settlement - District center city	-0.067	0.916	-0.501	0.000	-0.397	0.000
T * Type of settlement - Other city/town	-0.150	0.813	-0.747	0.000	-0.659	0.000
T * Type of settlement - Rural	-0.149	0.814	-0.610	0.000	-0.468	0.000
T * Ownership of: Dwelling	0.009	0.894	0.017	0.823	-0.031	0.380
T * Ownership of: Vehicle	-0.022	0.740	0.026	0.715	0.059	0.060
T * Ownership of: Regulated land spot	-0.123	0.132	-0.027	0.792	-0.059	0.165
T * Number of current migrants (abroad)	0.117	0.097	0.176	0.003	0.183	0.000
T * Number of return migrants (from abroad)	-0.079	0.172	0.058	0.377	0.017	0.567
Ethic - Roma**	-1.700	0.000	-2.412	0.000	-1.832	0.000
R * Number of employed	0.290	0.000	0.451	0.000	0.302	0.000
R * Number of unemployed	0.200	0.000	0.278	0.000	0.260	0.000
R * Number of children	0.115	0.000	0.205	0.000	0.113	0.000
R * Number of pensionners	0.262	0.000	0.480	0.000	0.262	0.000
R * Type of settlement - District center city	0.263	0.218	0.348	0.025	0.448	0.000
R * Type of settlement - Other city/town	0.383	0.049	0.468	0.000	0.498	0.000
R * Type of settlement - Rural	0.380	0.052	0.463	0.000	0.469	0.000
R * Ownership of: Dwelling	0.022	0.741	0.019	0.790	-0.055	0.116
R * Ownership of: Vehicle	0.210	0.016	0.152	0.012	0.071	0.041
R * Ownership of: Regulated land spot	0.014	0.928	0.272	0.001	-0.107	0.137
R * Number of current migrants (abroad)	0.108	0.270	-0.224	0.001	0.059	0.275
R * Number of return migrants (from abroad)	-0.021	0.655	0.071	0.143	0.063	0.001
Ethic - Other**	(dropped)		-0.231	0.082	-0.370	0.000
O * Number of employed	0.551	0.000	0.369	0.000	0.369	0.000
O * Number of unemployed	0.076	0.311	0.202	0.000	0.189	0.000
O * Number of children	0.033	0.694	0.048	0.211	0.025	0.291
O * Number of pensionners	0.245	0.090	0.176	0.000	0.125	0.002
O * Type of settlement - District center city	-0.265	0.601	(dropped)		(dropped)	
O * Type of settlement - Other city/town	-1.045	0.013	-0.429	0.004	-0.498	0.000
O * Type of settlement - Rural	-1.340	0.000	-0.652	0.000	-0.645	0.000
O * Ownership of: Dwelling	-0.076	0.782	0.007	0.916	-0.035	0.460
O * Ownership of: Vehicle	0.394	0.168	0.591	0.000	0.643	0.000
O * Ownership of: Regulated land spot	-0.135	0.640	-0.772	0.000	-0.654	0.000
O * Number of current migrants (abroad)	-1.623	0.042	-1.171	0.000	-1.172	0.000
O * Number of return migrants (from abroad)	0.400	0.277	-0.204	0.079	-0.210	0.022
Pseudo R-square for Quant.Regression	*0.624*		*0.478*		*0.469*	

Table A2 (cont.)

Characteristic	30th		40th		50th		60th	
	Coef	P-v.	Coef	P-v.	Coef	P-v.	Coef	P-v.
Constant	5.447	0.000	5.562	0.000	5.665	0.000	5.794	0.000
Number of employed	0.063	0.000	0.055	0.000	0.048	0.000	0.032	0.000
Number of unemployed	-0.311	0.000	-0.300	0.000	-0.277	0.000	-0.285	0.000
Number of children	-0.218	0.000	-0.219	0.000	-0.232	0.000	-0.232	0.000
Number of pensionners	-0.157	0.000	-0.168	0.000	-0.166	0.000	-0.185	0.000
Type of settlement - District center city**	-0.332	0.000	-0.336	0.000	-0.309	0.000	-0.290	0.000
Type of settlement - Other city/town**	-0.436	0.000	-0.432	0.000	-0.445	0.000	-0.383	0.000
Type of settlement - Rural**	-0.490	0.000	-0.458	0.000	-0.460	0.000	-0.450	0.000
Ownership of: Dwelling**	0.028	0.080	0.012	0.393	-0.001	0.885	-0.035	0.000
Ownership of: Vehicle**	0.160	0.000	0.170	0.000	0.159	0.000	0.163	0.000
Ownership of: Regulated land spot**	0.059	0.006	0.058	0.002	0.095	0.000	0.108	0.000
Number of current migrants (abroad)	-0.131	0.000	-0.102	0.000	-0.084	0.000	-0.059	0.000
Number of return migrants (from abroad)	0.051	0.011	0.085	0.000	0.081	0.000	0.102	0.000
Ethic - Turkish**	-0.220	0.004	-0.368	0.000	-0.414	0.000	-0.445	0.000
T * Number of employed	0.071	0.002	0.096	0.000	0.090	0.000	0.091	0.000
T * Number of unemployed	0.068	0.001	0.077	0.000	0.051	0.000	0.059	0.000
T * Number of children	0.065	0.002	0.046	0.026	0.018	0.165	0.010	0.416
T * Number of pensionners	0.118	0.000	0.112	0.000	0.095	0.000	0.089	0.000
T * Type of settlement - District center city	-0.204	0.002	-0.093	0.129	-0.049	0.238	0.019	0.630
T * Type of settlement - Other city/town	-0.439	0.000	-0.268	0.000	-0.192	0.000	-0.157	0.000
T * Type of settlement - Rural	-0.183	0.009	-0.099	0.114	0.004	0.933	0.038	0.322
T * Ownership of: Dwelling	-0.005	0.916	0.029	0.507	0.064	0.035	0.052	0.071
T * Ownership of: Vehicle	0.026	0.578	-0.003	0.948	-0.045	0.124	-0.071	0.010
T * Ownership of: Regulated land spot	-0.069	0.248	-0.132	0.012	-0.138	0.000	-0.128	0.000
T * Number of current migrants (abroad)	0.173	0.000	0.157	0.000	0.149	0.000	0.125	0.000
T * Number of return migrants (from abroad)	-0.061	0.116	-0.074	0.047	-0.076	0.003	-0.133	0.000
Ethic - Roma**	-1.803	0.000	-1.424	0.000	-1.529	0.000	-1.559	0.000
R * Number of employed	0.249	0.000	0.276	0.000	0.260	0.000	0.282	0.000
R * Number of unemployed	0.205	0.000	0.197	0.000	0.202	0.000	0.222	0.000
R * Number of children	0.092	0.000	0.095	0.000	0.124	0.000	0.089	0.000
R * Number of pensionners	0.199	0.000	0.225	0.000	0.219	0.000	0.231	0.000
R * Type of settlement - District center city	0.432	0.000	0.128	0.307	0.156	0.062	0.219	0.002
R * Type of settlement - Other city/town	0.642	0.000	0.224	0.041	0.225	0.002	0.194	0.002
R * Type of settlement - Rural	0.603	0.000	0.201	0.074	0.273	0.000	0.378	0.000
R * Ownership of: Dwelling	0.089	0.058	0.039	0.374	0.083	0.007	0.092	0.001
R * Ownership of: Vehicle	0.049	0.395	0.041	0.471	0.143	0.000	0.106	0.005
R * Ownership of: Regulated land spot	-0.214	0.046	0.048	0.596	0.045	0.500	0.000	0.997
R * Number of current migrants (abroad)	0.055	0.391	0.002	0.970	0.184	0.000	0.099	0.004
R * Number of return migrants (from abroad)	0.026	0.310	-0.034	0.133	-0.070	0.000	-0.103	0.000
Ethic - Other**	-0.467	0.001	-0.418	0.008	-0.505	0.000	-0.641	0.000
O * Number of employed	0.369	0.000	0.360	0.000	0.456	0.000	0.496	0.000
O * Number of unemployed	0.143	0.000	0.141	0.000	0.101	0.000	0.104	0.000
O * Number of children	0.027	0.513	0.132	0.000	0.091	0.000	0.077	0.000
O * Number of pensionners	0.128	0.024	0.144	0.033	0.133	0.005	0.149	0.001
O * Type of settlement - District center city	(dropped)		(dropped)		(dropped)		(dropped)	
O * Type of settlement - Other city/town	-0.500	0.004	-0.755	0.000	-0.485	0.001	-0.467	0.001
O * Type of settlement - Rural	-0.654	0.000	-0.896	0.000	-0.822	0.000	-0.801	0.000
O * Ownership of: Dwelling	-0.028	0.706	-0.189	0.046	-0.185	0.012	-0.153	0.032
O * Ownership of: Vehicle	0.636	0.000	0.692	0.000	0.473	0.000	0.408	0.000
O * Ownership of: Regulated land spot	-0.650	0.000	0.143	0.199	-0.027	0.762	0.054	0.532
O * Number of current migrants (abroad)	-1.118	0.000	-1.169	0.000	-1.152	0.000	-1.167	0.000
O * Number of return migrants (from abroad)	1.014	0.000	0.481	0.000	0.423	0.000	0.258	0.003
Pseudo R-square for Quant.Regression	*0.452*		*0.434*		*0.414*		*0.395*	

Table A2 (cont.)

Characteristic	70th		80th		90th	
	Coef	P-value	Coef	P-value	Coef	P-value
Constant	5.946	0.000	6.063	0.000	6.306	0.000
Number of employed	0.010	0.269	0.003	0.838	-0.002	0.935
Number of unemployed	-0.283	0.000	-0.254	0.000	-0.243	0.000
Number of children	-0.225	0.000	-0.227	0.000	-0.238	0.000
Number of pensionners	-0.191	0.000	-0.221	0.000	-0.248	0.000
Type of settlement - District center city**	-0.272	0.000	-0.263	0.000	-0.332	0.000
Type of settlement - Other city/town**	-0.352	0.000	-0.347	0.000	-0.429	0.000
Type of settlement - Rural**	-0.425	0.000	-0.413	0.000	-0.436	0.000
Ownership of: Dwelling**	-0.081	0.000	-0.039	0.158	-0.024	0.575
Ownership of: Vehicle**	0.149	0.000	0.161	0.000	0.174	0.000
Ownership of: Regulated land spot**	0.168	0.000	0.167	0.000	0.214	0.000
Number of current migrants (abroad)	-0.002	0.929	0.017	0.698	0.003	0.968
Number of return migrants (from abroad)	0.071	0.001	0.046	0.190	0.116	0.040
Ethic - Turkish**	-0.533	0.000	-0.816	0.000	-1.128	0.000
T * Number of employed	0.103	0.000	0.161	0.000	0.164	0.012
T * Number of unemployed	0.065	0.034	0.080	0.157	0.063	0.411
T * Number of children	0.017	0.456	0.058	0.067	0.093	0.035
T * Number of pensionners	0.092	0.010	0.141	0.018	0.193	0.042
T * Type of settlement - District center city	0.007	0.924	0.115	0.345	0.642	0.000
T * Type of settlement - Other city/town	-0.134	0.085	0.135	0.295	0.375	0.032
T * Type of settlement - Rural	0.029	0.702	0.121	0.340	0.287	0.101
T * Ownership of: Dwelling	0.094	0.084	0.144	0.091	0.131	0.315
T * Ownership of: Vehicle	-0.097	0.055	-0.137	0.095	-0.079	0.521
T * Ownership of: Regulated land spot	-0.197	0.001	-0.253	0.011	-0.256	0.091
T * Number of current migrants (abroad)	0.062	0.192	0.072	0.351	0.023	0.816
T * Number of return migrants (from abroad)	-0.110	0.008	-0.162	0.018	-0.258	0.024
Ethic - Roma**	-1.681	0.000	-1.690	0.000	-1.964	0.000
R * Number of employed	0.279	0.000	0.229	0.000	0.265	0.000
R * Number of unemployed	0.217	0.000	0.163	0.000	0.197	0.000
R * Number of children	0.068	0.000	0.065	0.015	0.076	0.003
R * Number of pensionners	0.244	0.000	0.179	0.002	0.168	0.033
R * Type of settlement - District center city	0.242	0.077	0.301	0.106	0.646	0.012
R * Type of settlement - Other city/town	0.296	0.015	0.474	0.001	0.713	0.001
R * Type of settlement - Rural	0.462	0.000	0.714	0.000	0.930	0.000
R * Ownership of: Dwelling	0.162	0.001	0.075	0.351	-0.085	0.361
R * Ownership of: Vehicle	0.219	0.001	0.287	0.005	0.473	0.003
R * Ownership of: Regulated land spot	-0.052	0.642	-0.016	0.928	-0.108	0.703
R * Number of current migrants (abroad)	0.275	0.000	0.238	0.028	0.033	0.796
R * Number of return migrants (from abroad)	-0.082	0.001	-0.061	0.141	0.130	0.065
Ethic - Other**	0.257	0.120	0.336	0.194	-0.145	0.546
O * Number of employed	0.701	0.000	0.836	0.000	0.882	0.000
O * Number of unemployed	0.065	0.151	0.027	0.735	0.108	0.073
O * Number of children	-0.040	0.321	-0.147	0.012	-0.141	0.017
O * Number of pensionners	0.137	0.022	0.080	0.447	-0.017	0.801
O * Type of settlement - District center city	(dropped)		(dropped)		(dropped)	
O * Type of settlement - Other city/town	-1.515	0.000	-1.836	0.000	-1.648	0.000
O * Type of settlement - Rural	-1.692	0.000	-1.690	0.000	-1.548	0.000
O * Ownership of: Dwelling	-0.125	0.375	-0.015	0.949	0.029	0.865
O * Ownership of: Vehicle	0.621	0.000	0.537	0.001	0.473	0.000
O * Ownership of: Regulated land spot	-0.098	0.462	-0.359	0.121	-0.126	0.434
O * Number of current migrants (abroad)	-2.802	0.000	-3.355	0.000	-3.216	0.000
O * Number of return migrants (from abroad)	0.515	0.000	0.804	0.000	0.160	0.337
Pseudo R-square for Quant.Regression	*0.370*		*0.345*		*0.313*	